

THE BATTLE OVER THE INSTITUTIONAL ECOSYSTEM IN THE DIGITAL ENVIRONMENT

How U.S. law, by adding exclusive private rights to information, favors traditional industrial production of information products and discourages the emerging culture of Net-based peer production.

The 1990s saw a series of technological shocks to the economic and technological ecosystem within which information is produced. These shocks—declining communication costs, increasing efficacy and availability of processing power, and manipulability of digitized information—challenged the dominance of the large-scale industrial information producers that flourished in the 20th century—Hollywood, the recording industry, and various publishing giants. They also brought about a Cambrian explosion of new types of information producers and new models of information production that now challenge the dominance of the incumbents. Volunteers of all types began to fill the Internet with information, knowledge, and cultural exchanges. From amateur weather observation posts to Viking heritage societies, from academic courses to online political discussion forums, small-scale, widely distributed information production and dis-

semination have taken root and now represent a serious alternative to the more tightly controlled, better-ordered information environment of only 10 or 20 years ago.

The centerpiece of the emerging species of information production is free software and its apolitical offspring: open source development. On top of volunteerism and “peer production”—by peer users who organize by communicating with each other, rather than through market mechanisms or managerial hierarchy—free software has provided “organization” in the sense of the common pursuit of purpose and measurable efficacy. Organization and efficacy, in turn, suggest the possibility of economic sustainability and, more dramatically, the potential superiority of the new model of information production over the old. If Apache, GNU/Linux, Perl, and Sendmail are better than their proprietary competitors, then the mode of information produc-

tion they represent deeply challenges our assumptions about the social value of the industrial information producers of the 20th century.

Institutional Parameters

Since the mid-1990s, we have seen an intensifying battle over the institutional parameters of the ecosystem within which these modes of information production compete. Most important, the effort to define the new parameters has meant a struggle over intellectual property rights. In the U.S., we have seen a vast expansion of rights in multiple dimensions. The term of copyright was lengthened. Patent rights were extended to cover business methods. Trademarks were extended by the Federal Anti-Dilution Act of 1995 to cover entirely new values, becoming the basis for liability in the early domain-name trademark disputes.

The most extreme reshaping of the legal landscape has involved the introduction of new legal tools with which information vendors can now hermetically seal access to their materials to an extent never before possible. The Digital Millennium Copyright Act of 1998 (DMCA) prohibited decryption of the encryption preventing access to digitized materials. The Uniform Computer Information Transactions Act (UCITA), which has so far been passed in two states and is being considered by others, validated clickwrap licenses. Together, these laws permit vendors of information products to control access to their products free of the inconvenient balances that U.S. copyright law has always included, such as “fair use,” which gives users rights to use copyrighted materials without permission in a variety of circumstances.

For example, the fair-use doctrine under traditional copyright law permits a critic to quote a 30-second clip from a videotape in order to criticize it. If the video is delivered in encrypted digital format (as are DVDs), however, under the DMCA, it becomes illegal for the critic to quote the 30-second clip. The reason is that, in order to quote, the critic must decrypt the copy-protection code. In the recent DVD case *Universal City Studios v. Reimerdes*, a federal district court in New York held that the DMCA does not include a fair-use defense

for decryption. The DMCA prohibits decryption of copyright-protection measures, except for a narrow set of exceptions, and absolutely prohibits creation or distribution of utilities for this type of decryption, apparently without exception. The court held that the U.S. Congress purposefully sacrificed the privileges of users, primarily those relying on utilities created by others, to secure the rights of the copyright owners. The upshot of the case is that by encrypting their digitized information products, vendors can exempt those products from the user privileges—like fair use—that U.S. copyright law has always secured.

Similarly, if a clickwrap license prohibits reverse engineering of the software it covers, the UCITA and several recent court cases would enforce that contractual provision. By doing so, the owner could deny to other developers the privilege to reverse engineer where it is considered a fair use under traditional copyright law and even where it is expressly permitted by the DMCA. That enforcing such licenses vitiates the balance struck by copyright law has left many legislators and judges unconcerned.

Contraction of the Public Domain

On another front, a debate is raging over legal protection for compiled data involving contraction of the public domain. Contraction does not follow, as with the DMCA and UCITA, from letting owners determine their own access rules, but by formally making private that which previously was in the public domain. Since the U.S. Supreme Court’s 1991 decision in *Feist Publications, Inc. v. Rural Telephone Services Co., Inc.* it has been understood that raw data is in the public domain and cannot be protected by copyright. Both the Copyright Act of 1976 and the Constitution left the unoriginal aspects of a database, that is, the raw data, free for use in the public domain. Copying data from an existing compilation was therefore not “piracy.” It was not unfair or unjust but purposefully privileged in order to advance the goals of intellectual property—the advancement of progress and creative use of the data.

Since *Feist*, the larger players in the database

publishing industry have pushed Congress to pass a law that would, as a practical matter, overturn *Feist* and create a property right in compiled raw data. Because *Feist* was a constitutional decision, these efforts are disguised as creating not an intellectual property right in unoriginal data but as an “unfair competition” law. However, the law that has been introduced repeatedly walks, talks, and looks like a property right.

Most important, the proposed law applies to value-adding users, not solely to free-riding competitors, as an unfair-competition law would. The congressional committee that supported the bill stated, for example, that a person compiling a database of public-domain photographs of famous people in Massachusetts would have a claim against another person combining parts of the same database with similar databases from other states to create a national portrait gallery. This kind of trade-off between past information producers and future information producers is at the heart of intellectual property but has little to do with unfair competition.

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Moreover, the proposed new exclusive rights in data extends to repeated access for the purposes of gleaning one or two facts at a time. Information production that relies on automated search programs to collect information from existing sites will likely run afoul of the proposed database protection law. They will continue to exist, if at all, at the sufferance of the sites being searched in this manner.

It is precisely the right to prevent this type of information collection that eBay, not waiting for Congress to move on database protection, succeeded recently in persuading a federal district court in California to invent for it out of common law whole cloth. In *eBay v. Bidder's Edge*, the court found that by crawling eBay's site in search of information about what is up for auction there, Bidder's Edge—an aggregator of data on what is available for auction on various sites—perpetrated a form of trespass. This holding (or a federal database law expanding its effect nationally) would threaten to make illegal many such automated information-collection techniques.

Tilted in Favor of Industrial Production

To understand how the expansion of exclusive private rights in information tilts the institutional ecosystem within which information is produced against peer production and in favor of industrial production, consider the following examples, one real-world, one hypothetical.

The real example is the *Los Angeles Times v. Free Republic* case. In 1999, the *Washington Post* and the *Los Angeles Times* persuaded a federal district court in California that individual users should not be permitted to cut and paste stories from their online editions onto a political discussion forum in which they participated. The Free Republic Web site is a gathering place for conservatives; one service it offered was a forum in which users would post newspaper stories with comment, and others would continue to comment on the piece. The Free Republic forum presents an alternate information universe; its end points are peer users, rather than consumers of finished packaged goods. “Quality”

in this world is created not by “professionalism” but by shared values, by knowing one's interlocutors and conversing with them, and by the sheer number of users scouring the world, looking for things on which to comment.

The court found that by enabling users to share stories

they found at the New Republic site had violated the newspapers' rights and prohibited them from sharing the stories as part of their political discourse. To reach this conclusion, the court assumed that public discourse is best served by increasing incentives to professional, commercial producers relying on copyright to sell their products, even at the expense of individual users thereby prevented from engaging in public discourse.

The result of interpreting law to serve the commercial/professional producer was to burden access for the peer producers of news and commentary—the forum participants—to the raw materials needed for their common enterprise. The decision is a quintessential instance of a self-fulfilling perception of the world. It began with an assumption that there are active commercial producers and passive consumers, and that consumers are better off when producers have strong incentives to produce. It then shaped law to make the production and dissemination of news and comment more lucrative for commercial producers and more hostile and

costly for amateur or volunteer producers.

To understand the effect in more detail, consider the following hypothetical example of the implications of the proposed database-protection law. Imagine that a company invests in collecting genealogical information intending to bundle it in a family-software pack for distribution with home computers. Under present law, if an enthusiastic fourth-grade teacher decides to take the information in the database and write a program to allow his or her students to create personalized family trees with photos they bring from home, the teacher is perfectly privileged to do so. Copyright law leaves the raw genealogical information in the public domain precisely in order to allow and encourage such creative reutilization. The new database law would, however, require the teacher to get permission from, and pay, the original compiler of the genealogical data.

It is important to understand that this law would cause producers like the teacher to avoid engaging in creative efforts *inefficiently*. When the teacher is deciding whether to write code to customize the database for the students, the genealogical information has already been collected; no new resources need be expended to allow the teacher to use it. The social cost of the teacher using that information is therefore zero. This is what economists mean when they say that information is a public good.

The only real social cost of the teacher's developing the utility for making a personalized photo-integrated family tree is his or her own time and effort. Under present law, the teacher can decide to invest this effort out of dedication to his or her work, for the joy of creativity, or, if he or she is more calculating, for the positive effects on his or her personal reputation. With the new law, the teacher would also have to factor-in the price of using the data—a cost that from a purely economic perspective is inefficient for the teacher to take into consideration. If he or she decides that spending the time and effort (the actual social cost of development) is worth it but cannot pay for the data, because, for example, neither the teacher nor his or her school has the budget to buy it, the teacher would not write the additional code. Given that the teacher is willing to invest the time and effort, the decision not to develop the program because of the cost of using the data is inefficient.

The problem is not specific to databases. It applies more generally to exclusive private rights in information. As information or cultural products—with the same public-goods economic char-

acteristics as raw data—become more completely enclosed by intellectual property rights, the public-domain contracts. Small-scale or noncommercial producers deciding whether to produce some information or cultural element face the same difficulty as the teacher in the example. Only companies whose business models depend on licensing rights reap the benefits of strong rights. Everyone else simply has to pay higher prices for input.

Moreover, when intellectual property rights are extensive, owning a large inventory gives owners relatively cheaper access to raw materials than is available to producers who do not own large inventories; they can reuse their own materials, as well as those available to all from the public domain. This means that commercial organizations that integrate new information production with ownership of large inventories of existing information do better in an environment with very strong property rights than either noncommercial organizations or other commercial organizations that do not own large inventories. Industrial information producers (such as the major movie studios) are the greatest beneficiaries of stronger property rights because of the way they organize their productive enterprises. Their gain comes at the expense of other modes of production, most extensively at the expense of peer production.

Potential for Profound Social Transformation

The emergence of free software-like productive enterprises and nonprofit production of culture, knowledge, and information (both professional and amateur) presents the potential for a profound social transformation. The 19th and 20th centuries were dominated largely by one major social-political problem—figuring out how freedom, productivity, and justice could be attained in a material world. Contemporary Western capitalism eventually triumphed over all its alternatives—anarchism, communism, fascism, as well as 19th-century laissez-faire capitalism—by adhering to a particular conception of freedom that political philosophers call “negative liberty,” separating questions of productivity from questions of freedom and putting productivity ahead of justice. The success of our current social and economic system has been so overwhelming that we increasingly view it as the best of all possible worlds.

However, the combination of economic evolution toward an economy focused on information production and exchange and our technological shift toward digitally networked communication

changes the fundamental parameters around which the settlement of contemporary Western capitalism has congealed. The economics of information production and exchange are fundamentally different from the economics of physical goods. This is not a millenarian statement or utopian vision; it simply states the basic economic understanding that information is fundamentally different from physical stuff as an object of economic activity.

What has failed to materialize in our public discourse is a debate over how this change in a central part of our productive activity challenges our social-political settlement. Liberal democracies developed their prevailing answers to the question of how shall individuals be free, productive, and

second was corporate hierarchy. Some economic activities were best coordinated by markets; others were better organized by managers. The result was that most individuals lived their productive lives as part of corporate organizations, with relatively limited control over how, what, or when they produced; these organizations, in turn, interacted with one another through a combination of markets and hierarchy. Consumption was strictly separated from production for most people and largely devoted to receipt of finished goods, not to creative utilization of materials to shape one's own environment.

Sustainable Peer Production

Emerging now in the information economy is a model of peer production. Individuals communicate with one another about which projects are worth pursuing and who might want to take them up; they share their products in an economy of gifts, reputation, and relationally based rewards. Consumption and production are integrated, not separated, so each individual is a "user," rather than either purely a "producer" or "consumer."

The possibility of sustainable peer production is not mushy wishful thinking. That much, at least, is demonstrated by Apache, GNU/Linux, Perl, Sendmail, and other free software programs.

In peer production, low-cost continuous information exchange replaces price signals and hierarchical commands as the primary mechanism of cooperation and coordination. Low-cost communication, enabling thousands of individuals to collaborate on complex projects, is therefore a necessary precondition to the emergence of peer production as a third mode of organizing production, distinct from either markets or hierarchies.

The other necessary precondition is low-cost access to the universe of existing information that is the raw material from which new information goods are made. The capacity of thousands to scour a rich universe of existing information resources allows them to identify productive opportunities and the creative individuals who can best use these resources. That capacity is the primary source of productivity gains that peer production offers our economy. It is here, too, that the ecological competition between the industrial, large-scale producers of yore and the peer producers of today kicks in. If large-scale commercial producers (relying on some mix of market and

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live in a just society when the core resources and outputs in their economies (such as coal, ore, and grains) were scarce traditional economic goods, costly to produce and distribute. They found that organizing production under these conditions requires boxing freedom into the categories of "public-political" and "private-personal," keeping both to a great extent out of the productive realm. We discovered that too much focus on equality could lead to a serious decline in productivity, to the serious compromise of freedom, or both. But these answers no longer have the same purchase when the most valuable inputs and outputs of our society—information, knowledge, culture, and human creativity—are either public goods in the strict economic sense or uniquely personal to creative, nonfungible individuals.

The point is that simply copying the settlement from the economy of stuff to the economy of information is unnecessary. In that portion of our lives increasingly occupied by information, we can be free in a richer sense and more egalitarian in the distribution of wealth while maintaining or increasing productivity.

At the root of the economic—and ultimately social—transformation is a change in the menu of options for being effective and productive in the information economy. In the atoms economy, we settled more or less on two modes of making production decisions. The first was the market; the

hierarchy to coordinate production and appropriate the benefits of their enterprises) can enclose much of the universe of useful information inputs with newfangled property rights, contracts, or encryption, then they can seriously limit the viability of peer production as a widespread, sustainable alternative mode of production. The squelching of peer production is at the heart of today's legal battles over intellectual property.

Political Economy in Systematic Imbalance

These battles suffer from a systematic imbalance. The incumbents gain and internalize all the benefits from new rights. Their gains are concentrated, and they view them as private gains unto themselves. The costs to peer users—in terms of increased cost of access to information inputs—are diffuse and to be incurred largely in the future. Those who are destined to pay them after a new right is created are dispersed, many not seeing themselves at the time of legislation as implicated by the law. Just as the fourth-grade teacher in the earlier hypothetical example about databases would be unlikely to participate in the database-protection legislative process. This systematic imbalance leads to a process of legislation that steadily increases the scope and extent of exclusive private rights in information, with occasional carve-outs for specific constituencies that happen to be well organized and recognize at the time of legislation that they will be adversely affected by the law.

The consequences of the legislative imbalance could be devastating to peer production, the emerging species of information production. While peer producers may be equally or even better able to set the technological parameters of the environment in which they compete with the large incumbents, setting the technical parameters alone will likely be insufficient. A Linux DVD player depends on legally permissible access to DVD encryption. It is not enough that the encryption can be cracked. For Linux DVD players to become widespread, *legal* access is necessary. As long as the large-scale industrial information producers can persuade legislators and judges that their existence depends on hermetically sealing all access to all information materials, as they did in the DMCA and in the *Universal City Studios* DVD case, legal access to the raw materials necessary for peer production will be denied.

What peer production needs to flourish is a space free of the laws developed to support market- and hierarchy-based information production. In the late 18th and early 19th centuries, market-

based production was replacing artisan and guild-based production, and the common law developed the framework—modern property and contract law—that transition needed. The guild masters resisted, but law changed. In the late 19th and early 20th centuries, larger-scale production in corporate hierarchies was necessary to coordinate the complex production decisions that technology had made possible. Law developed to accommodate these properties by developing corporate law, antitrust law, labor law, and securities law. Some of these newer laws conflicted with and displaced contract and property law, as in the power corporate law gives managers to make decisions independent of the wishes of “the owners” of the corporation (its shareholders) and as labor law displaces traditional contract law.

Entering the 21st century, our law must again develop to accommodate another newly emerging mode of production, this time peer production. Here, the primary need is to develop the legal framework for sharing and exchanging information among peers whose interaction is not based on exclusion requiring property rights. Property is a hindrance, not an aid, when peer production of a public good like information is possible. Law must instead adapt to develop a series of sustainable commons in the information environment.

Whether law shall permit peer production to emerge has social importance well beyond the importance of any single use. Such use could be a particular program or even free software as a phenomenon peculiar to software production, as opposed to as a template for peer production of information more generally. A peer-produced environment both requires and enables a legal framework that increases the diversity of information available to people in society and decreases opportunities to control political processes and individuals' personal choices. A robust public commons in which all can speak to all and collaborate with all in sharing perspectives on how the world is and how it could be enhances our political self-governance as well as our individual self-governance, that is, our autonomy.

Can Freedom Resolve into Anarchy?

Risks, too, are associated with this freedom. Traditionally, we have relied on various points of control, including corporate boards, community ethics, and law, to ensure that freedom does not turn to anarchy and that diversity of voices does not turn to cacophony. Where shall community and order come from in the new, free environment? Some of

the established peer-production systems, including university research, and the newly emerging peer-production systems (such as free software) suggest that freedom does not resolve into anarchy in the absence of trenchant organizational control of the corporate or state-based varieties.

People develop community standards and mutual reliance and monitoring that rely on the media in which they communicate to one another, doing so as part of the peer-production processes. Common efforts that lack mechanisms for self-ordering fail as productive enterprises and as structures for organizing social life. We should therefore focus our legal design interventions to facilitate self-ordering of distributed peer-production communities.

The transformation will therefore not be to a world in which no one is responsible to anyone else, and no standards apply to one's behavior other than one's own. There will be neither a libertarian nor an anarchist utopia. But there could be incremental and significant improvement in autonomy and self-selection in each of our social relations, and more authentic social organization.

spoils of the transformation to a digitally networked environment and the information economy. Stakeholders from the older economy are using legislation, judicial opinions, and international treaties to retain the old structure of organizing production so they continue to control the empires they've built or inherited. Copyright law and other intellectual property, broadcast law, spectrum-management policy, and e-commerce law are all being warped to fit the size of the hierarchical organizations of yesteryear. In the process, they are stifling the evolution of the distributed, peer-based models of information production and exchange.

As economic policy, letting yesterday's winners dictate the terms of tomorrow's economic competition is disastrous. As social policy, missing an opportunity to enrich our freedom and enhance our justice while maintaining or even enhancing our productivity is unforgivable. ■

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Conclusion

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